LISTING OF CLAIMS

Please amend claims 7, 34, 39 and 42 as follows. This listing of claims will replace all prior versions, and listings, of claims in the application.

1-6. (Cancelled).

7. (Currently amended) Substantially pure DNA having the protein coding region of the nucleotide sequence shown in Figures ~~9(A), 9(B) and 9(C)~~ **9A, 9B and 9C**.

8-33. (Cancelled).

34. (Currently amended) A substantially pure polynucleotide or complement thereof, comprising DNA encoding a beta2 subunit of a neuronal acetylcholine receptor, wherein said DNA has 64% sequence homology to the nucleotide sequence set forth in Figures ~~9(A), 9(B) and 9(C)~~ **9A, 9B and 9C**, and

wherein said beta2 subunit has one or more functional properties selected from the group consisting of:

i) being able to substitute for the muscle beta1 subunit in the formation of an acetylcholine receptor, but not being able to substitute for the gamma or delta subunit of a neuronal nicotinic acetylcholine receptor;

ii) not binding acetylcholine, nicotine or analogs thereof;

iii) forming, in conjunction with an alpha3 or an alpha4 subunit, a neuronal nicotinic acetylcholine receptor that is blocked by bungarotoxin 3.1 but not by α-bungarotoxin; and

iv) forming, in conjunction with an alpha2 subunit, a neuronal nicotinic acetylcholine receptor that is not blocked by either bungarotoxin 31 or α-bungarotoxin.

35. (Previously presented) The substantially pure DNA of claim 34 comprising the nucleotide sequence of pPCX49, ATCC No. 67643, or complement thereof.

36. (Previously presented) Cells transformed by the substantially pure polynucleotide of claim 34.

37. (Previously presented) A vector containing the substantially pure polynucleotide of claim 34.

38. (Previously presented) A RNA complementary to said polynucleotide of claim 34.

39. (Currently amended) A substantially pure polynucleotide encoding a beta2 subunit of a neuronal acetylcholine receptor, wherein said polynucleotide has at least 15 contiguous bases that hybridize **under high stringency conditions** to the complement of the nucleotide sequence set forth in Figures ~~**9(A), 9(B) and 9(C)**~~ **9A, 9B and 9C**,

wherein said beta2 subunit has one or more functional properties selected from the group consisting of:

i) being able to substitute for the muscle beta1 subunit in the formation of an acetylcholine receptor, but not being able to substitute for the gamma or delta subunit of a neuronal nicotinic acetylcholine receptor;

ii) not binding acetylcholine, nicotine or analogs thereof;

iii) forming, in conjunction with an alpha3 or an alpha4 subunit, a neuronal nicotinic acetylcholine receptor that is blocked by bungarotoxin 3.1 but not by α-bungarotoxin; and

iv) forming, in conjunction with an alpha2 subunit, a neuronal nicotinic acetylcholine receptor that is not blocked by either bungarotoxin 3.1 or α-bungarotoxin.

40. (Previously presented) Cells transformed by the substantially pure polynucleotide of claim 39.

41. (Previously presented) A vector containing the substantially pure polynucleotide of claim 39.

42. (Currently amended) A substantially pure polynucleotide encoding a neuronal nicotinic acetylcholine receptor beta2 subunit, wherein said beta2 subunit has

~~**a) 50% amino acid sequence identity to neuronal nicotinic acetylcholine receptor alpha subunits selected from the group consisting of alpha2 (Figures 18(A),**~~

~~18(B) and 18(C)), alpha3 (Figure 13), alpha4 (Figure 13) and alpha5 (Figures 28(A), 28(B) and 28(C));~~

a) 50% amino acid sequence identity to the amino acid sequences of alpha2 neuronal nicotinic acetylcholine receptor subunit as set forth in Figures 18A-18C, alpha3 neuronal nicotinic acetylcholine receptor subunit as set forth in Figure 13, alpha4 neuronal nicotinic acetylcholine receptor subunit as set forth in Figure 13, or alpha5 neuronal nicotinic acetylcholine receptor subunit as set forth in Figures 28A-28C;

b) 44% amino acid sequence identity to **the amino acid sequence of** a beta3 subunit of a neuronal nicotinic acetylcholine receptor ~~(Figure 23)~~ **as set forth in Figure 23**; and

c) 64% amino acid sequence identity to **the amino acid sequence of** a beta4 subunit of a neuronal nicotinic acetylcholine receptor ~~(Figures 27(A), 27(B) and 27(C))~~ **as set forth in Figures 27A, 27B and 27C**; and

wherein said beta2 subunit has one or more functional properties selected from the group consisting of:

i) being able to substitute for the muscle beta1 subunit in the formation of an acetylcholine receptor, but not being able to substitute for the gamma or delta subunit of a neuronal nicotinic acetylcholine receptor;

ii) not binding acetylcholine, nicotine or analogs thereof;

iii) forming, in conjunction with an alpha3 or an alpha4 subunit, a neuronal nicotinic acetylcholine receptor that is blocked by bungarotoxin 3.1 but not by α-bungarotoxin; and

iv) forming, in conjunction with an alpha2 subunit, a neuronal nicotinic acetylcholine receptor that is not blocked by either bungarotoxin 3.1 or α-bungarotoxin.

43. (Previously presented) Cells transformed by the substantially pure polynucleotide of claim 42.

44. (Previously presented) A vector containing the substantially pure polynucleotide of claim 42.